

African Catfish a Boon or Bane for Environment: A Critical Analysis

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I. Introduction

African catfish or *Clarias gariepinus*¹ which is locally known as Mangur is that variety of fish which is banned in India due to its carnivorous nature. This fish belongs to the family of claridae. The African catfish (*C. gariepinus*) was surreptitiously introduced into the state of West Bengal possibly during 1994 and quickly spread throughout the country, including coldwater regions as well as coastal areas. It is largely cultured in the states of West Bengal and Andhra Pradesh². This fish was introduced in India without taking official sanction³ and it was introduced all over the world in 1980⁴ for the purpose of aquaculture. This fish was an exotic fish. This fish generally feeds on living, dead animals, fish, other invertebrates and also attacks small birds. This fish has an ability to survive in shallow mud, poorly oxygenated water. This fish grow faster in compare to other fish. This fish affects the native fish by various ways. African catfish is a threat to the indigenous aquatic species. There is one more variety of this fish belonging to the family of claridae⁵ i.e. *Clarias batrachus* which is considered to be the nearest cousin of African Catfish. *C. batrachus* is a fresh water fish.

There is one more variety of Mangur fish which is available in market i.e. Hybrid Mangur (*C. gariepinus* x *C. macrocephalus*). The hybrid catfish (*C. gariepinus* x *C. macrocephalus*)⁶, a fast growing variety is being produced in hatcheries in Bangladesh and smuggled into the bordering north-eastern States, Assam and West Bengal and as far as Bihar, forming the basis of a flourishing trade in India.

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¹African Catfish Battle to Stay in India,

<https://thefishsite.com/articles/african-catfish-battle-to-stay-in-india> (Viewed on 16 January, 2018, 11.20 pm) http://www.journalrepository.org/media/journals/ARRB_32/2014/Dec/Singh612014ARRB13375_1.pdf (Viewed on June 20, 2018, 2.00 pm)

²A. K.Singh, Abubakar Ansari and others, "An Appraisal of Introduced African Catfish *Clarias gariepinus* (Burchell 1822) in India: Invasion and Risks", *Annual Research & Review in Biology*, available at: http://www.journalrepository.org/media/journals/ARRB_32/2014/Dec/Singh612014ARRB13375_1.pdf(Viewed on June 20, 2018, 2.00 pm)

³ Catfish farming banned, but stocks pose danger, available at: <https://www.thehindu.com/news/national/kerala/catfish-farming-banned-but-existing-stocks-pose-danger/article19234693.ece> (Viewed on June 24, 2018, 5.00 pm)

⁴Ibid.

⁵ Supra note 1

⁶ Supra note 2

Hybrid catfish is more popular owing to its fast growth and is very inexpensive to feed because recycled chicken and slaughterhouse wastes are generally used. West Bengal is the hub of African catfish seed production⁷.

II. Research Methodology

For this Research, researcher has used both Doctrinal and non-doctrinal methods. For doctrinal researcher has used various newspaper articles, books, journals. For non-doctrinal researcher has done field study by visiting fish market of her locality to find out the difference between the Asian Catfish and African fish and also to show that in spite of its banning African catfish, it is still available in the market openly. Used interview method too for this research.

III. Impact of African Catfish in Environment

African Catfish can release 4,00,000 eggs in a single season whereas the *C. batrachus* release 7,000 to 15,000 eggs. African Catfish is a threat to the aquatic ecosystem as it deprives the other native species from their food and breeding space. As African Catfish has a tendency to grow fast and it increases rapidly in all ecosystems due to its ability of producing number of offspring and for its high survival rate.

The African Catfish is one of the good choices for the farmers as by investing meager amount, one can earn huge profit from its farming. The African Catfish is a threat to indigenous fish as the indigenous fish may become extinct in future because of the carnivorous nature of the African Catfish. African Catfish is a threat to aquatic ecosystem as it has a capacity to finish it. Though Catfish has medicinal value and in some cases doctor advises patients to eat catfish.⁸ Catfish has a capacity of fulfilling the daily nutritional demand. Meat of Mangur fish is high in protein, iron and less in fat content⁹

As we know that African Catfish is not a local fish in Indian waters, but one of its nearer cousins i.e. *Clarias batrachus* belonging to the family of Claridae is found in fresh waters of Indian lakes. Unlike African Catfish which is highly carnivorous in nature and a threat to ecosystem, its nearer cousin *Clarias batrachus* is opposite in nature and also it would not affect the ecological balance of natural water bodies. On the other hand *Clarias gariepinus* due to its predatory habit may cause drastic changes in the ecosystem in long run and can cause economic loss. Also there is a chance of natural hybridization which would result in ecological imbalance in the natural waters of India. African Catfish was introduced in Bangladesh first

⁷ Ibid

⁸ Catfish Farming, available at: <https://www.roysfarm.com/catfish-farming/> (Viewed on 16 May, 2018, 12.30 pm) (Viewed on 16 May, 2018, 1.00 am)

⁹ Magur Catfish, available at: <https://www.apnikheti.com/en/pn/livestock/freshwater-aquaculture/magur-catfish>. (Viewed on 16 May, 2018, 1.00 am)

and later in West Bengal¹⁰. About a decade and half ago it was also introduced in Kolleru lake area of Andhra Pradesh¹¹. Later the Central Government in 1997 imposed ban on Catfish culture and requested the State Governments to take necessary steps to prevent rearing of Catfish in the aquaculture ponds after receiving complaints from well-meaning people and considering reports from various Research Organizations.¹²

Even The Centre had issued a blanket ban against the breeding, a blanket ban against the breeding, sale or purchase of African Mangur in 2002¹³.

Sometimes peoples refused to buy *C. gariepinus* because of the religious sentiments that this fish consumes slaughterhouse waste¹⁴ even its price is less in compare to Asian catfish. Due to the spreading of African catfish, it has become risk for the *C. batrachus* along with other fish biodiversity. Also *C. gariepinus* are obligatory air-breathers fish with carnivorous behavior that metabolize more protein in its food and in result release more ammonia in water as an end product of metabolism and accumulation of ammonia can cause a wide range of ecological impacts including loss of native biodiversity, altered habitats, changes in water chemistry, altered biogeochemical processes, hydrological modifications, and altered food webs. Because of this only the department of Animal Husbandry, Dairying and Fisheries (DAHD&F), Ministry of Agriculture, Government of India banned culture of African catfish vide office letter number 31016/1/96-FY dated 19-12-97¹⁵. Also African Catfish is not good for human health. It may cause skin allergy, heart and liver problems¹⁶. Only the Asian catfish or mangur is good for health.

So, here we found that African Catfish is banned due its negative impact in Aquatic Ecosystem and Environment as result, though it has nutritional value lots in compare to other fish and when we talk about economic benefit of this fish it is cheap for the consumer and for the investor who invest in fish aquaculture as for them it's a good investment.

IV. Legal Provisions Relating To Implications Of Banning Notice

- **Constitutional Provisions**- As per the fundamental right given under Article 19 of Indian Constitution which states that "(1) all citizens shall have the right

¹⁰*D. Srinivasa Raju vs District Forest Officer And Ors*, 2002 (5) ALD 252

¹¹ Ibid

¹² Ibid.

¹³ Fishy business: Crackdown on breeding of African magur, *available at*: <https://timesofindia.indiatimes.com/city/delhi/fishy-business-crackdown-on-breeding-of-african-magur/articleshow/56723062.cms> (Viewed on 29 June, 2018, 2.45 pm)

¹⁴ Supra note 2

¹⁵ Ibid.

¹⁶ Businessman caught selling banned African catfish, Times of India, *available at*: <https://timesofindia.indiatimes.com/city/hyderabad/Businessman-caught-selling-banned-African-catfish/articleshow/19570887.cms> (Viewed on July 15, 2018, 3.00 pm)

(g) to practice any profession, or to carry on any occupation, trade or business"¹⁷. But this right does not confer the right to carry on any business, trade, occupation or profession which is unlawful or is hindering general public interest and anything at the cost of environment will automatically harmful or not safe for the human health also because of this reason only the farming and selling of *C. gariepinus* was banned. Fish culture is not bad or banned but when question comes about *C. gariepinus*, as already discussed above that *C. gariepinus* is not at all good for aquatic ecosystem and for some small birds also.

Eevn in D. Srinivasa Raju vs District Forest Officer and ors 2002 (5) ALD 252¹⁸"In an order dated 17.07.2002 the Hon'ble High Court of Andhra Pradesh has upheld the decision of the Government for imposition of ban in carrying on the trade and business including the culture of African Catfish in the State of Andhra Pradesh¹⁹".

According to judgments passed by various courts regarding these issues it is clear that as per Article 19 of Indian Constitution no one can carry any business which is harmful to environment.

- **Administrative Law-** We all knows about the three organ of government i.e. Legislature, Executive and Judiciary. Even there is a separation of power between them by which no one will interfere the work of the others. Legislature duty is to make laws according to the need of the society. Executive duty is to execute the law made by the legislature and Judiciary duty is to give relief whenever there is a breach in the law. In African Catfish case, Union government in 2013 has done its duty by issuing the notice of banning African catfish in India due to its harmful effects in ecosystem and environment as a whole.

Even during this research what I found that there is a failure of administration in the part of the executive to ban this fish from market as well as from cultivation.

Recently Nilgiris District Collector J. Innocent Divya²⁰ has banned the rearing of African catfish because the species poses a threat to native wildlife. This

¹⁷ Article 19 in The Constitution Of India 1949, *available at:* <https://indiankanoon.org/doc/1218090/> (Viewed on 5th Sep.2018, 1.15 pm)

¹⁸ Before the National Green Tribunal Southern Zone, Chennai, *available at:* <http://www.indiaenvironmentportal.org.in/files/catfish%20mafia%20ngt%20judgement%20telangana.pdf> (Viewed on 23rd Apr.2019)

¹⁹ Ibid

²⁰ Staff Reporter, "Rearing of African catfish banned in the Nilgiris", *available at:* <https://www.thehindu.com/news/cities/Coimbatore/rearing-of-african-catfish-banned-in-the-nilgiris/article26583712.ece> (Viewed on 23rd Apr.2019, 10.20 am)

was done according to the order passed by the National Green Tribunal which sought to prevent the spread of the invasive fish species.

Again in a “W.P No. 30011/2012 Hon’ble High Court of Karnataka in its order dated 06.02.2013 has observed as follows: 9. We are of the view that the Deputy Commissioners of all the Districts have to take steps to eradicate the African Cat Fish keeping as it causes health hazard to the general public. In so far as Razaqsab Palya, Budensab Palya and Bagalur Villages are concerned, since Cat Fishing rearing ponds have already been dismantled, strict vigil has to be kept to ensure that no such activity is repeated again in these areas. In so far as all the other Districts are concerned, immediate steps have to be taken for dismantling the Cat Fish rearing ponds in accordance with law and vigil has to be kept to ensure that no such activity is repeated again. ordered accordingly²¹”.

This above mentioned cases is the clear indication that it is the duty of the executive to imposed the banned order of the governments in different states of India and available of this fish in open market is clear indications of failure of administration in the part of the executive.

- **Environment (Protection) Act, 1986-** The African catfish was banned in 2000 by the Ministry of Agriculture, Department of Animal Husbandry and Dairying (Fisheries Division) under the Environment Protection Act due to its negative impact.

Even “the National Green Tribunal through its order no 435/2018 dated January 22, 2019, has banned rearing of the species as it was posing a threat to several local varieties of fish and polluting water bodies. Known as African Mushi, the species was introduced across the globe in 1980 for aquaculture and in India without official sanction. The fish has the ability to survive in shallow mud for long period of time and high tolerance for poorly oxygenated water. The release warned that rearing of the banned fish violates the law and action will be taken accordingly²²”.

- **Indian Penal Code, 1872-** Even one can be booked under penal provisions of India if found to violates this banning notice. The following are the provisions where a cases can be booked against a perpetrators –
 - ❖ Section 270²³- Malignant act likely to spread infection of disease dangerous to life: - Whoever malignantly does any act which is, and which he knows

²¹ Supra note 20

²² Staff Reporter, “Ban on rearing of African catfish”, available at: <https://www.thehindu.com/news/cities/Coimbatore/ban-on-rearing-of-african-catfish/article26600953.ece> (Viewed on 23rd Apr.2019, 3.15 pm)

²³Prof. S. N. Mishra, *Indian Penal Code 434* (Central Law publications, Allahabad, 19th edn., 2013)

or has reason to believe to be, likely to spread the infection of any disease dangerous to life, shall be punished with imprisonment of either description for a term which may extend to two years, or with fine, or with both.

- ❖ Section 273²⁴- Sale of noxious food or drink:- Whoever sells, or offers or exposes for sale, as food or drink, any article which has been rendered or has become noxious, or is in a state unfit for food or drink, knowing or having reason to believe that the same is nox-ious as food or drink, shall be punished with imprisonment of either description for a term which may extend to six months, or with fine which may extend to one thousand rupees, or with both.

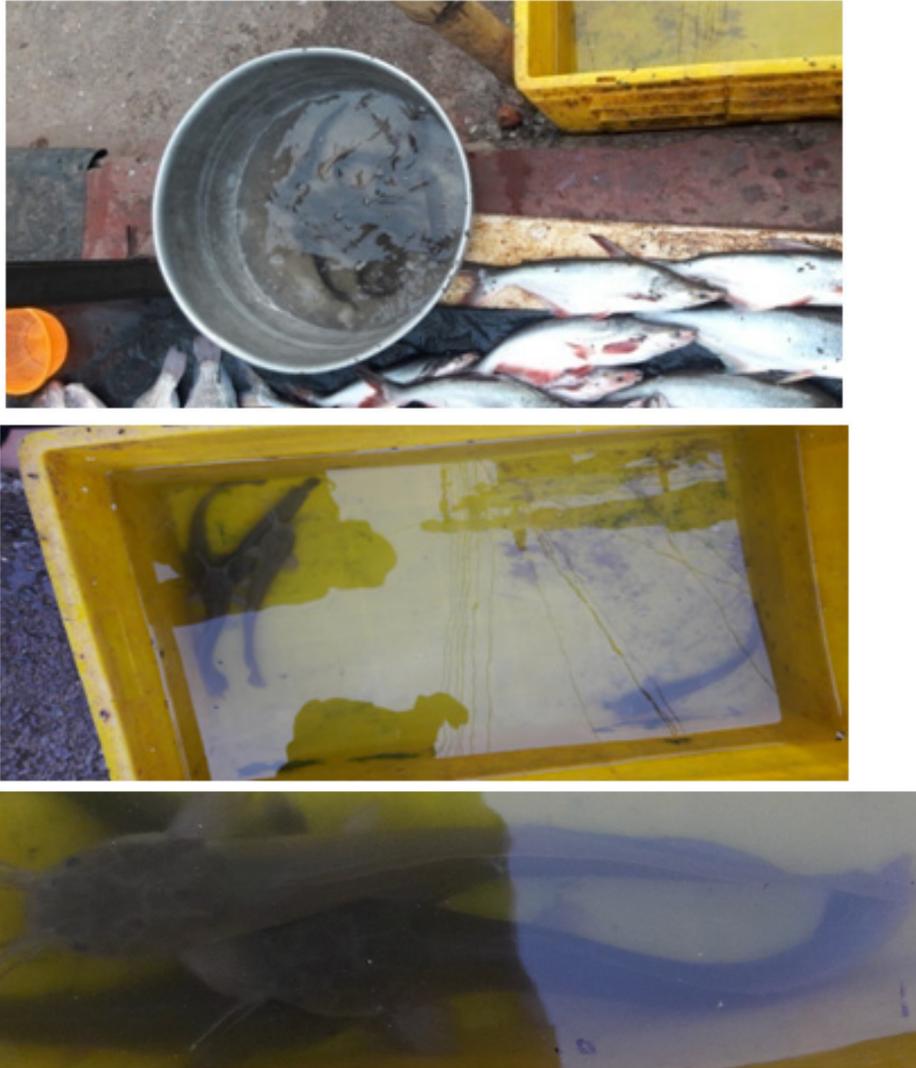
As already discuss ed above and from the interview with Dr. Samir Malla what I found that African catfish is not at all good for environment as well as for human consumption.

V. Result And Discussion

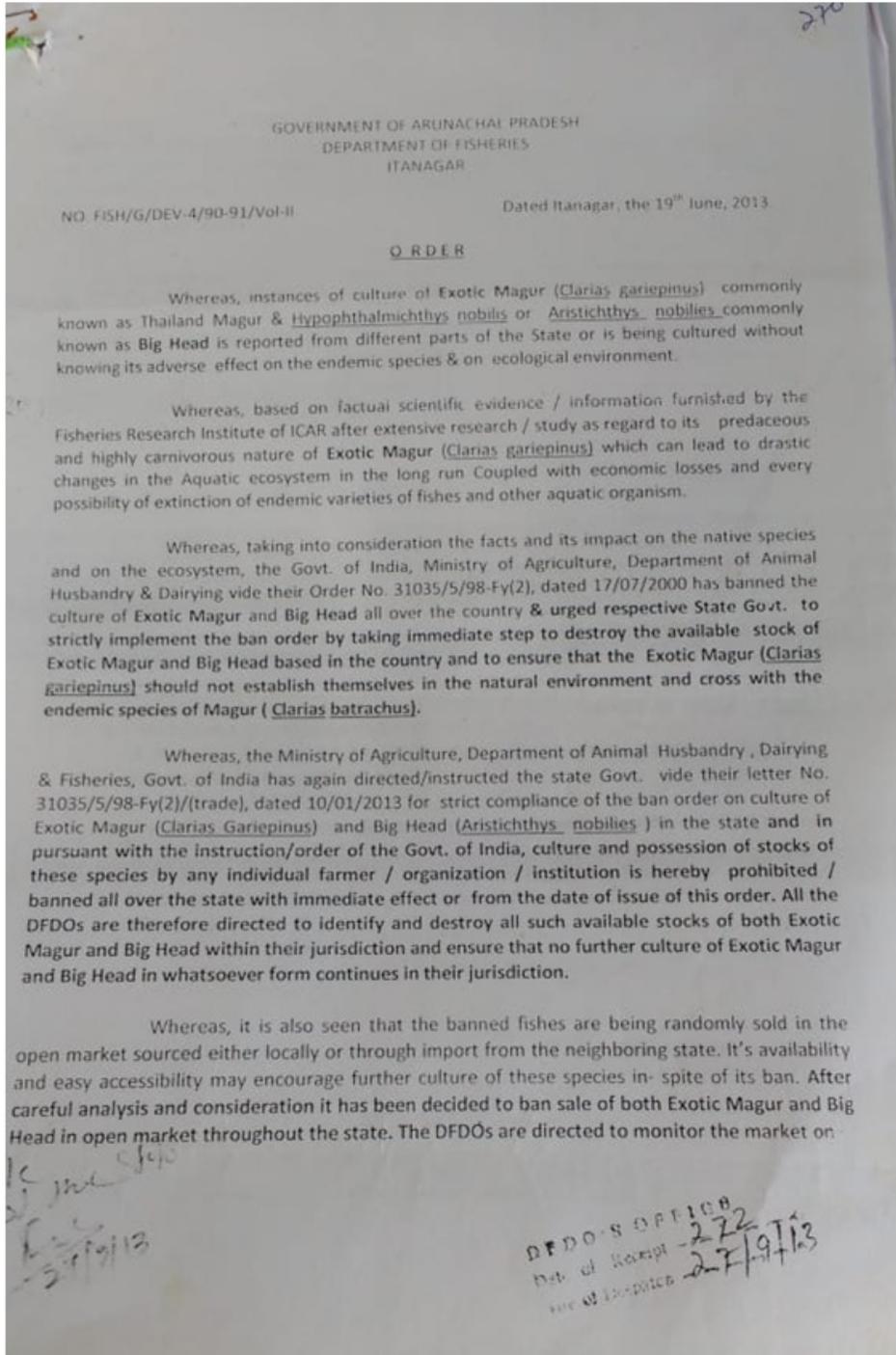


Picture1. African Catfish or C.gariepinus Picture taken from one of the Fish Market of Amlidi, Raipur Chattisgarh

²⁴ Ibid



Picture 2. Asian Catfish or C. batrachus Taken from Telibandha Fish Market, Raipur, Chhattisgarh



regular basis, confiscate and destroy these products if found being illegally sold by any fish vendor/farmer in the state and let off with veiled warning for first time offence. Necessary assistance in this regard may be sought from the District Administration.

Local PRI leaders and Administration be convinced as regard to its long term implication and adverse impact on aquatic ecosystem and be involved fully for effective implementation of this order. **Wide publicity may be given among the general public and local fish traders / farmers throughout the state for generating awareness and strict adherence.**

This notification / order is issued in terms with the Arunachal Pradesh Fisheries ACT-2006 under Section 6 sub section (1). Any violation of this order shall invite legal action as per the provision of law or in terms with the provisions of the Arunachal Pradesh Fisheries Act 2006 under section 6 sub section (2) Clause (a).

Sd/- H.K. Paliwal, IAS,
Chief Secretary,
Govt. of Arunachal Pradesh,
Itanagar.

Memo NO. FISH/G/DEV-4/90-91/Vol-II 12175 Dated Itanagar, the 12th Sept, 2013.
Copy to :-

1. The PS to Hon'ble Minister (Fisheries), Govt. of Arunachal Pradesh, Itanagar, for kind appraisal of Hon'ble Minister please.
2. P.S. to Chief Secretary, Govt. of Arunachal Pradesh, Itanagar for favour of kind appraisal of Chief Secretary please.
3. The Fisheries Development Commissioner, Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture, Govt. of India, for information. This has a reference to his No. referred above.
4. The Secretary (Fisheries), Govt., of Arunachal Pradesh, Itanagar.
5. The All Deputy Commissioners, Arunachal Pradesh, for information and wide circulation.
6. All DFDOs, Arunachal Pradesh for information and wide circulation.
7. The Editor, Arunachal Times / Echo of Arunachal, Itanagar, for publication in the daily.
8. Office copy.

(D. Salu) IDAS
Secretary (Fisheries),
Govt. of Arunachal Pradesh,
Itanagar.

Sept in the
Record file
14/09/13

Staff
Circulate amongst
the staff.

Picture 3- Arunachal Pradesh Government Notification for banning of African Catfish

From Pic.1 it is clear that African catfish is easily available in market though it has been banned long back by Ministry of Agriculture, Government of India. But what I found during my studies that Fishmonger were easily selling this fish in open market which again clearly shows that either they don't have any knowledge about the banning of African catfish or knowingly they are doing this. Even many state Government Issue notice banning this fish. But still this fish is available in market. I have annexed one notice issued by the government of Arunachal Pradesh (See Pic.3). Another point to be noted here is that during my study what I found that African catfish was easily available in market, but Asian catfish (See Pic.2) was not easily available in market. Also, recently in one of the study it is found that *C. batrachus* is identified as vulnerable and is about to extinct²⁵.

As I have discussed above there is one more variety of catfish that is Hybrid Mangur. But this fish is not available in market as well as during my interview also Samir Sir told that this fish is not available in market as it is not common in India and he has also not seen this fish in any market.

Now the question which comes here is that how to differentiate between the African Catfish and Asian Catfish. So, here is the difference of this two fish:-

1. Asian catfish are small in size but African Catfish are not.
2. Asian catfish are not fleshy but African catfish are fleshy in nature.
3. There is another difference between this two i.e. in market Asian fish are kept with water as shown in pic.2 but African Fish were kept without water.;
4. Asian catfish are light weight fish in compare to African Catfish.
5. African catfish is generally dark black colour fading to a white belly as shown in Pic.1. Whereas Asian catfish is dark grayish to grayish black in colour.
6. There is one more difference between the two relating to its price- Asian Catfish normally between Rs.400-600 and African catfish Rs. 150 to 200/-

One must know the difference between this two fishes because many Fishmonger sale African Catfish in the name of Asian Catfish or Mangur. As Asian Catfish or Mangur are high in demand and recently their production has been less due to many reason like part to habitat loss, over fishing due to its high demand in market and the introduction of *C. gariepinus* in India²⁶.

²⁵Beata Wiêcaszek, Stanisław Krzykowski, "Morphometric characteristics of asian walking catfish *clarias batrachus* (L., 1758) (actinopterygii: clariidae) from the laboratory culture", 13(4) EJPAU(2010) available at: <http://www.ejpau.media.pl/volume13/issue4/art-01.html> (Viewed on July 15, 2018, 2.30 am)

As I have already discussed above that there is one more variety of Mangur fish which is available in the market that is Thai Fish. Now as per my discussion with Samir Sir regarding the confusion of the Thai Mangur and African Mangur, what he said that both the Thai Mangur and African Mangur are same. They both have the same scientific name i.e. *C. gariepinus*. But due to different place of origin there common name is different. Also there may be slight difference in the test of the both fish. Fishes sharing the same scientific name i.e. *C. gariepinus* are banned in India though they may differ by their common name or place of origin. Also Samir Sir added that *C. gariepinus* is not good for Human health. Only Asian Catfish is good for human health.

During my discussion with Samir Sir, What I found that there is no law relating to rules and regulation of *C. gariepinus* mean to say that from its introduction to Indian water, till now it's presence in Indian water is illegal and harmful to human, birds, indigenous fish etc. There is a need of strong law for the protection of *C. batrachus* and also for the destruction of *C. gariepinus*. Then only the banning notice will be execute properly.

VI. Conclusion And Recommendations

From this research it is confirmed that even though Government has banned *C. gariepinus* in India strictly in 1997 but still this fish is available in the market openly which clearly shows that somewhere the notice was not implemented by the executive of the Government strictly or we can say that it is the failure of the Government to stop the cultivation and selling of this fish. Even, Fishmonger needs to be educated about the negative impact of this fish. As *C. gariepinus* is not only a threat for the aquatic ecosystem but due to this *C. batrachus* are in a position of extinct if it is not protected. Anything which is harmful for the Environment is indirectly harmful for us also. This small thing we have to understand. Also Fishery department of all states should take strict action for the implementation of this banning notice. Media should highlight this matter by spreading awareness among public. Also we have to stop the cultivation of this fish but for this we should know how to differentiate the *C. gariepinus* and *C. batrachus*. Once we differentiate the two, then we will stop purchasing the *C. gariepinus* which is sold in the market in name of Mangur because of high demand of the *C. batrachus*. Above all awareness among public and fishmonger is the only solution to solve this problem.

African Catfish may be a boon for human being for its nutritional values but it's a bane for the environment.

²⁶Gulab Dattarao Khedkar, Anita Tiknaik and others, "High rates of substitution of the native catfish *Clarias batrachus* by *Clarias gariepinus* in India", *available at*: https://www.researchgate.net/publication/261441266_High_rates_of_substitution_of_the_native_catfish_Clarias_batrachus_by_Clarias_gariepinus_in_India (Viewed on 5th Sep.2018, 9.30 pm)